

the electronic device 200 includes device information and power class information of the electronic device 200. The device information includes ID, a function, and specifications of the electronic device 200, and also includes information indicating whether the device is capable of transmitting power.

[0042] The power class information is information indicating maximum power the power-transmitting apparatus 100 can transmit and maximum power the electronic device 200 can receive, for example, low power class, middle power class, or high power class. For example, the low power class is defined as that the maximum transmittable power is 2 W and the maximum receivable power is 1 W, and the high power class is defined as that the maximum transmittable power is 15 W and the maximum receivable power is 6 W.

[0043] When there is no response from the electronic device 200 (NO in Step S302), the CPU 110 determines that the authentication response has not been received, and returns to Step S301. When there has been the authentication response from the electronic device 200 (YES in Step S302), the CPU 110 proceeds to Step S303.

[0044] In Step S303, the CPU 110 determines whether a power transmission request has been received from the electronic device 200. When the power transmission request has been received from the electronic device 200, the CPU 110 proceeds to Step S304, and when the power transmission request has not been received, the CPU 110 ends the process illustrated in FIG. 3.

[0045] In Step S304, the CPU 110 determines transmitted power that the power-transmitting apparatus 100 transmits to the electronic device 200 based on the power class information of the power-transmitting apparatus 100 and the power class information received as the authentication response from the electronic device 200. For example, when both the power-transmitting apparatus 100 and the electronic device 200 correspond to the high power class, the power-transmitting apparatus 100 can transmit power to the electronic device 200 at the high power class, and the transmitted power is a maximum of 15 W. When the power-transmitting apparatus 100 corresponds to the high power class and the electronic device 200 corresponds to the low power class, the power-transmitting apparatus 100 can transmit power to the electronic device 200 at the low power class, and the transmitted power is a maximum of 2 W. The CPU 110 proceeds to Step S305 from Step S304.

[0046] In Step S305, the CPU 110 starts transmitting power to the electronic device 200 from the power-transmitting apparatus 100. The CPU 110 controls the transmitted power adjusting circuit 103 to gradually increase a transmission output to the transmitted power determined in Step S304. The CPU 110 proceeds to Step S306 from Step S305.

[0047] In Step S306, the CPU 110 performs a foreign substance detection process for detecting a foreign substance other than the electronic device 200, and proceeds to Step S307. Details of the foreign substance detection process will be described below. In accordance with the result of the foreign substance detection process (Step S307), the CPU 110 proceeds to Step S308 in a case where a foreign substance has been detected, and ends the process illustrated in FIG. 3 in a case where no foreign substance has been detected.

[0048] In Step S308, the CPU 110 executes a process for limiting power transmission from the power-transmitting

apparatus 100 to the electronic device 200. In the power transmission limiting process, the CPU 110 controls the transmitted power adjusting circuit 103 to limit a power transmission output to the extent of power sufficient to communicate with the electronic device 200. After limiting the transmitted power, the CPU 110 ends the process illustrated in FIG. 3.

[0049] In Step S304, the CPU 110 has determined the transmitted power based on the power class information of the power-transmitting apparatus 100 and the power class information of the electronic device 200. However, the power-transmitting apparatus 100 can unilaterally determine the transmitted power. In addition, the CPU 110 can determine the transmitted power based on the power class information or receivable power information received from the electronic device 200.

[0050] FIG. 4 is a flowchart for explaining details of the foreign substance detection process (Step S306). A computer program that realizes the process illustrated in FIG. 4 is stored in the ROM 108, and the CPU 110 reads the computer program from the ROM 108 and executes the computer program, thereby realizing the process illustrated in FIG. 4. In the flowchart illustrated in FIG. 4, the presence of a foreign substance is determined by using a power efficiency threshold. In other words, the power efficiency threshold is adopted as a foreign substance detection threshold for determining the presence of a foreign substance.

[0051] In Step S401, the CPU 110 acquires transmitted power of the power-transmitting apparatus 100. The transmitted power is power output to the electronic device 200 from the power-transmitting apparatus 100 based on the transmitted power determined in Step S304. After acquiring the transmitted power, the CPU 110 proceeds to Step S402.

[0052] In Step S402, the CPU 110 determines whether the transmitted power acquired in Step S401 is at least 1 W. When the transmitted power acquired in Step S401 is at least 1 W (YES in Step S402), the CPU 110 proceeds to Step S403. When the transmitted power acquired in Step S401 is less than 1 W (NO in Step S402), the CPU 110 proceeds to Step S404.

[0053] In Step S403, the CPU 110 determines whether the transmitted power acquired in Step S401 is at least 6 W. When the transmitted power acquired in Step S401 is at least 6 W (YES in Step S403), the CPU 110 proceeds to Step S406. When the transmitted power acquired in Step S401 is less than 6 W (NO in Step S403), the CPU 110 proceeds to Step S405.

[0054] In Step S404, the CPU 110 sets a power efficiency threshold as a foreign substance detection threshold to 35%, and proceeds to Step S407. In Step S405, the CPU 110 sets a power efficiency threshold as a foreign substance detection threshold to 40%, and proceeds to Step S407. In Step S406, the CPU 110 sets a power efficiency threshold as a foreign substance detection threshold to 45%, and proceeds to Step S407. For example, when the transmitted power is 0.5 W, the power efficiency threshold is 35%. When the transmitted power is 3 W, the power efficiency threshold is 40%. When the transmitted power is 10 W, the power efficiency threshold is 45%. As described above, the larger the transmitted power, the higher the power efficiency threshold is set.

[0055] In Step S407, the CPU 110 determines whether received power information in the electronic device 200 has been received from the electronic device 200 through the communicating unit 106. At appropriate timing or based on